

## **Chapter 3 – Mitigation Strategy**

### **3.1 Overview of Mitigation Strategy**

This section discusses the process employed to evaluate and update the previously adopted Hazard Mitigation Goals and Objectives and related Hazard Mitigation Initiatives. The current update to the LMS resulted in significant changes to the prioritized list of Hazard Mitigation Initiatives. The procedures used to update these elements of the Mitigation Strategy are discussed in the following sections.

### **3.2 Participation in the National Flood Insurance Program (NFIP)**

According to a recently published report<sup>22</sup>, the National Flood Insurance Program (NFIP) plays a major role in efforts to reduce both flood losses to property and the loss of natural floodplain functions. Congress established the NFIP with the passage of the National Flood Insurance Act of 1968 and made major changes to the program in 1973, 1994, and 2004. The NFIP's creation was based on the federal government's consideration of several factors, including the high cost of floods to property owners and to federal, state, and local governments.

#### *NFIP Purpose:*

1. Decrease the risk of future flood losses,
2. Reduce the costs and adverse consequences of flooding,
3. Reduce the demands and expectations for disaster assistance after floods, and
4. Preserve and restore the natural and beneficial values of floodplains.

Both Leon County and the City of Tallahassee participate in the NFIP. New FEMA flood maps depicting Flood Insurance Rate Map (FIRM) zones and other areas of the City of Tallahassee and Leon County were in production in Spring 2009. Both the Leon County Commission and the City of Tallahassee Commission will adopt these maps by Fall or Winter 2009. This will be the third time since the late 1990s that FEMA has coordinated the production of local flood maps.

In addition to participation in the NFIP, both Leon County and the City of Tallahassee have adopted and continue to enforce minimum floodplain management regulations that help mitigate the effects of flooding on new and improved structures. Examples of these regulations and ordinances are listed below for each jurisdiction.

City of Tallahassee Land Development Code Sec. 6-11. forms the basis for establishing the areas of special flood hazard:

“The areas of special flood hazard identified by the Federal Emergency Management Agency in its flood insurance study report for the city, dated March 16, 2005, with

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<sup>22</sup> “The Evaluation of the National Flood Insurance Program Final Report,” October 2006. <http://www.fema.gov/library/viewRecord.do?id=2573>

accompanying flood insurance rate maps and other supporting data, and any revision thereto, are adopted by reference and are declared to be part of this chapter.”

Among the requirements is Sec. 6-62(1), which requires that:

“New construction or substantial improvement of any residential structure shall have the lowest floor, including basement, elevated no lower than two feet above the base flood elevation.”

NFIP Policies in Leon County

In August 1999, 2,033 NFIP policies had been issued within the City of Tallahassee and the unincorporated areas of Leon County. Over the last ten years, the number of NFIP policies issued in Leon County has increased 88 percent. Table 3.1 displays the number of NFIP policies issued within Leon County jurisdictions and also includes the value of these policies.

Table 3.1. Leon County NFIP Policy Statistics as of January 31, 2009.

<b>Community Name</b>	<b>Policies In-force<sup>23</sup></b>	<b>Insurance In-force<sup>24</sup></b>	<b>Written Premium In-force<sup>25</sup></b>
Leon County (Unincorporated Areas)	1,551	\$347,230,600	\$722,991
City of Tallahassee	2,281	\$482,276,400	\$1,175,333
<b>Total</b>	<b>3,832</b>	<b>\$829,507,000</b>	<b>\$1,898,324</b>

Source: FEMA Policy and Claim Statistics for Flood Insurance, 2009. <<http://bsa.nfipstat.com/reports/1011.htm#FLT>>.

Leon County does not participate in the Community Rating System, which is an incentive program for communities that exceed the minimum NFIP requirements. (The incentive is up to 45% premium reductions for policyholders.) This has been due to the historically low number of residents who purchase flood insurance and the small reduction in premium value.

<sup>23</sup> Policies in force on the "as of" date of the report.

<sup>24</sup> The coverage amount for policies in force.

<sup>25</sup> The premium paid for policies in force.

### 3.3 Hazard Mitigation Goals and Objectives

To assist them in analyzing regional, county and municipal policies, ordinances and programs that affect mitigation the LMS Committee developed the six hazard mitigation goals, with supporting objectives, listed below. The list was developed from a review of County and City comprehensive plans, land development regulations, and the comprehensive emergency management plan to determine those elements of the plans and regulations with mitigation implications. Please refer to Technical Appendix H for a discussion of the policy review.

These hazard mitigation goals and objectives were also critical in evaluating the proposed mitigation initiatives that are described later in this chapter. Whether or not a proposed mitigation initiative met one or more of the hazard mitigation goals were considered when prioritizing the individual mitigation initiatives. Each goal was assigned a value of five points; an initiative that supported all six goals would receive 30 points. The LMS Committee then reviewed each mitigation initiative and assigned a number of points to that initiative based on the number of mitigation goals the initiative supported. Table 3.4 lists the amount of points each initiative received for meeting hazard mitigation goals.

During the 2010 update to the LMS, the LMS Committee re-evaluated the adopted Hazard Mitigation Goals and Objectives at a meeting on April 23, 2009. Based on direction from the LMS Committee, the goals and objectives were amended to exclude the term ‘high-hazed’ and replace it with the term ‘hazard.’ After these changes were made, the LMS Committee reviewed the list and affirmed that the goals and objectives were still valid.

1. Goal: Protect human health, safety and welfare

Objectives:

- 1.1 Limit public expenditures in areas identified as subject to repetitive damage from disasters.
- 1.2 Ensure the protection of critical facilities such as prohibitions on constructing critical facilities in hazard areas.
- 1.3 Reduce or eliminate development in hazard prone areas such as floodplains.
- 1.4 Regulate non-conforming land uses particularly in areas subject to damage from disasters.
- 1.5 Encourage the removal of septic tanks and technically hazardous sites such as chemical storage facilities from hazard areas.
- 1.6 Consider the impact of hazard mitigation when conducting development review and approval.
- 1.7 Implement additional development restrictions on hazard areas.
- 1.8 Consider the use of land acquisition programs for properties subject to development that are located in hazard areas.

1.9 Coordinate efforts to develop and maintain current maps of regional hazards.

2. Goal: Protect economic activities within the community.

Objectives:

2.1 Encourage economic diversification to protect the community from hazards that may affect a single economic source.

2.2 Encourage programs to address repetitively damaged and vulnerable commercial structures.

2.3 Coordinate with the local business community in the development of existing and proposed mitigation initiatives.

3. Goal: Enhance regional mitigation efforts.

Objectives:

3.1 Coordinate with other government agencies to develop regional mitigation efforts.

3.2 Encourage hazard response training with agencies throughout the region.

3.3 Coordinate with other government agencies to develop regional hazard mapping procedures and processes.

4. Goal: Promote adequate and safe housing.

Objectives:

4.1 Encourage programs to address repetitively damaged and vulnerable residential structures.

4.2 Encourage the development of hazard mitigation-related building codes and inspection procedures.

5. Goal: Protect community resources, including, but not limited to, infrastructure, and environmental, recreational and historic resources.

Objectives:

5.1 Provide for the removal and/or relocation of damaged and vulnerable infrastructure.

5.2 Regulate land use, floodplains, non-point source stormwater run-off, and the design and location of sanitary sewer and septic tanks in hazard-prone areas, pursuant to rule 9J5.012(3)(c)3, F.A.C.

5.3 Encourage the removal of septic tanks from hazard areas.

6. Goal: Promote the community's ability to respond to a disaster in a timely manner.

Objectives:

- 6.1 Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).
- 6.2 Develop procedures to request limited revision of Flood Insurance Rate Map studies from the NFIP.
- 6.3 Develop procedures to address activities that can earn credit toward reduction of NFIP insurance premiums through CRS.
- 6.4 Encourage public awareness of hazards and hazard prone areas in the community.
- 6.5 Preserve the ability to evacuate hazard areas.
- 6.6 Develop policies and procedures for pre- and post-storm development.

### **3.4 Prioritization Procedures for Hazard Mitigation Actions**

While developing the list of hazard mitigation initiatives, the LMS Committee recognized the need to prioritize the initiatives so that those initiatives with the greatest mitigation benefits were ranked over initiatives with less mitigation benefits. The criteria and measures listed in Table 3.2 were developed to assist the LMS Committee in this process. Members of the LMS Committee representing the lead agency for each initiative were given responsibility for prioritizing individual initiatives. While the potential range of scores for each initiative was a minimum of 80 to a maximum of 500 points, actual scores fell between 120 and 390 points. Due to the variation in types of initiatives, the LMS Committee decided it would be more useful to group them into high, medium or low categories as opposed to emphasizing individual scores. The score results for individual initiatives are available for review in Table 3.4. The range of scores for each grouping was established by dividing the point spread into thirds. This produced high (300-390 points), medium (210-299 points) and low (140-209 points) priority categories. This division resulted in 11 high, 8 medium and 5 low priority initiatives. Completion dates were not provided as part of the prioritization process. The LMS Committee felt that since many of the projects will depend on outside funding sources, each with their own eligibility criteria, it would be difficult to establish completion dates.

The main emphasis of the prioritization procedures is to promote initiatives that support public health and safety, protect people and protect real property in the most vulnerable areas. Points are also provided for initiatives that supported essential or critical public and private services, and previously identified mitigation goals. Implementation time was also considered. Finally, bonus points were awarded to those initiatives that provide additional benefits. The intent of

these procedures is not to direct a rigid order for the accomplishment of initiatives. The purpose of the ranking is to indicate the overall importance of the project to local mitigation efforts. The implementation of an initiative will usually depend more on the availability of funds, than on how high or low it ranked compared to other initiatives.

Table 3.2: Mitigation Initiatives Prioritization Procedures.

<b>Criteria</b>	<b>Measure</b>	<b>Points</b>
Supports public health and safety	<ol style="list-style-type: none"> <li>1. Immediate - Alleviates an existing health or safety hazard</li> <li>2. Intermediate - Alleviates potential health or safety hazards</li> <li>3. Long-term - Promotes or maintains health or safety</li> </ol>	<ol style="list-style-type: none"> <li>1. Immediate - 100 points</li> <li>2. Intermediate - 75 points</li> <li>3. Long-term - 50 points</li> </ol> <p>Maximum number of points is 100</p>
Protects people	Percentage of at risk population to benefit.	<ol style="list-style-type: none"> <li>1. &gt; 75% - 80 points</li> <li>2. 50-75% - 60 points</li> <li>3. 25-50% - 40 points</li> <li>4. 10-25% - 20 points</li> <li>5. &lt;10% - 0 points</li> </ol> <p>Maximum number of points is 80</p>
Protects property	Percentage of at-risk buildings, property or infrastructure protected and/or ability to address a repetitive loss problem.	<ol style="list-style-type: none"> <li>1. Protects &gt;50% or resolves rep. loss problem - 80 points</li> <li>2. Protects 25-50% or improves rep. loss problem - 60 points</li> <li>3. Protects 10-25% - 40 points</li> <li>4. Protects &lt;10% - 20 points</li> <li>5. No property protection - 0 points</li> </ol> <p>Maximum number of points is 80</p>
Reduces risk of future damage	<p>Reduces or eliminates future risk of damage to a facility and/or infrastructure based on hazard events that are:</p> <ol style="list-style-type: none"> <li>1. Immediate - event occur yearly (on average)</li> <li>2. Significant - event occurs every 2 - 4 years (on average)</li> <li>3. Moderate - event occurs every 5 - 10 years (on average)</li> <li>4. Minimal - event occurs once every 11 years or more (on average).</li> </ol>	<ol style="list-style-type: none"> <li>1. Immediate - 80 points</li> <li>2. Significant - 60 points</li> <li>3. Moderate - 40 points</li> <li>4. Minimal - 20 points</li> </ol> <p>Maximum number of points is 80</p>

Table 3.2: Prioritization Procedures (continued)

<b>Criteria</b>	<b>Measure</b>	<b>Points</b>
Supports essential or critical services	<ol style="list-style-type: none"> <li>Essential public services protected, such as gas, electric, garbage, sewer, roads, water, fire and police/sheriff, shelters, EOC, etc.</li> <li>Essential business services protected, such as building supply, gas, ice, banks, etc.</li> </ol>	<ol style="list-style-type: none"> <li>Essential public service - 20 points</li> <li>Essential business service - 10 points</li> <li>No essential service - 0 points</li> </ol> <p>Maximum number of points is 30</p>
Supports goals established in the Community Guiding Principles	Number of mitigation goals the initiative supports.	<p>5 points for each mitigation goal supported</p> <p>Maximum number of points is 30</p>
Ease of Implementation	Length of time to implement initiative	<ol style="list-style-type: none"> <li>&lt; 1 year - 60 points</li> <li>1 - 2 years - 40 points</li> <li>2 - 5 years - 30 points</li> <li>5 - 10 years - 10 points</li> <li>&gt; 10 years - 0 points</li> </ol>
Provides benefits that are a bonus beyond those previously identified.	<ol style="list-style-type: none"> <li>Benefits extend beyond the county boundaries.</li> <li>Promotes public/private cooperation.</li> <li>Promotes individual responsibility.</li> <li>Provides multi-hazard risk reduction.</li> </ol>	<p>10 points per bonus item.</p> <p>Maximum number of points is 40</p>
<b>Maximum Number of Points For Any Initiative - 500</b>		

As noted earlier, simply because a project has a high ranking does not mean that project will be funded first. The ranking indicates the overall importance of the project to local mitigation efforts. However, the grant specific funding guidelines (such as income levels, community matches, type of project, etc.) and the availability of funding will often be more important in determining which projects will be funded and when, than will the project’s overall ranking.

### 3.5 Current Prioritized Hard Mitigation Initiatives

In 1999, the LMS Committee began the hazard mitigation identification process by identifying existing and planned mitigation initiatives. This process included a review of the Capital Improvements Plan, applicable City and County ordinances, and hazard-related program activities. A list of these local mitigation initiatives that formed the model for the first draft of the Prioritized Mitigation Initiatives list are included in Technical Appendix I. The Working Group proposed a mix of additional mitigation programs, policies and projects to help further reduce the county’s disaster profile. Many of these initiatives have been completed, which has reduced Leon County’s and the City of Tallahassee’s vulnerability to identified hazards. Descriptions of completed mitigation initiatives have been included as a benchmark for progress in Technical Appendix D.

For the 2010 update to the LMS, the Prioritized List of Hazard Mitigation Initiatives and related scoring procedure were re-evaluated by the LMS Committee and resulted in significant changes. The statuses of mitigation initiatives were discussed in a meeting of the LMS Committee on April 23, 2009. LMS Committee staff presented a status report on each of the 45 mitigation initiatives. The status updates were derived from the annual progress report produced by the City of Tallahassee Stormwater Management Division each year, and through discussion with LMS Committee members and other local officials. After status updates on each initiative were presented to the LMS Committee and discussed among attendees, initiatives that had been completed were removed for the mitigation initiatives list. A number of initiatives were also modified given that the objectives and goals of the initiative had been partially met or completed. After discussion and evaluation of the mitigation initiatives, the LMS Committee removed 18 completed initiatives from the list; modified three initiatives based on progress and partial achievement of initiative objective; edited and condensed seven initiatives to produce three new initiatives; added one new initiative to the prioritized mitigation actions list. Status updates on all initiatives and descriptions of completed and modified mitigation initiatives have been included as a benchmark for progress in Technical Appendix D. The current Prioritized Mitigation Initiatives list includes 24 initiatives. Table 3.3 provides a description of each initiative, the agency responsible for leading efforts towards implementation and potential funding sources.

### 2009 Estimated Costs Ranking System

In order to assess the benefits of mitigation actions versus the cost of implementing these initiatives, an economic evaluation of mitigation initiatives was incorporated into the current LMS update. Previously, an economic evaluation of each mitigation initiative was performed by determining available funding sources for each initiative. Potential funding sources are still incorporated into the description of each mitigation initiative in Table 3.3. The addition of an estimated cost ranking system serves the purpose of assessing the potential cost of implementing each mitigation initiative. It also provides an indicator of the extent to which benefits may be maximized according to a cost-benefit review of the proposed projects and their associated costs.

<sup>26</sup>The categories of the estimated cost ranking system are depicted below:

Low	\$1 - \$50,000
Medium	\$50,001 - \$250,000
High	\$250,001 and up

Estimated costs were derived through consultation with LMS Committee staff and other local officials familiar with the initiatives and related programs. LMS Committee staff met on numerous occasions to discuss aspects of each initiative and estimate costs for implementing these initiatives. Estimated cost rankings for each mitigation initiative have been incorporated into Table 3.3.

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<sup>26</sup> A full cost-benefit was not conducted of the projects and initiatives in this plan based on a lack of time and staff to do so. However, if pre- and/or post-disaster funding is pursued by local government or other institutions, a cost-benefit analysis is automatically required from all applicants.

The mitigation programs and policies identified by the LMS Committee are generally non-capital efforts, such as policy changes and updates to existing codes and plans. These are initiatives the local governments can usually start and complete without outside assistance and/or funding. In many instances, the County and City already have the information they need to begin the programs, and simply need direction from local elected authorities to begin. The hazard mitigation projects are almost exclusively capital efforts, including stormwater ponds, culverts, flood warning devices, storm retrofits and emergency response equipment purchases. For most of these efforts, the local governments will require outside funding assistance. Many of the identified projects will involve both studies and implementation of the study results. All stormwater related projects are included under mitigation initiative 8 in Table 3.3. For a complete listing of current and future stormwater projects for both the City of Tallahassee and Leon County, please refer to Tables 3.5 – 3.9.

**Table 3.3. Prioritized Mitigation Initiatives with Potential Funding Sources, 2009.**

Initiative	Explanation	Specific Hazard Addressed	Estimated Costs, 2009	Responsible Agencies	Potential Funding (non-local source) <sup>1</sup>
1. Increase intergovernmental coordination in the area of stormwater management.	Stormwater does not follow jurisdictional boundaries. Land use activities in the City can affect drainage characteristics outside municipal boundaries and, to a lesser extent, vice versa. In the past, stormwater management opportunities have been constrained by fiscal concerns and the impacts of significant amounts of pre-code development. These factors necessitate strong intergovernmental coordination for stormwater management efforts to be effective. Conditions have improved, but there remains a need to continue pursuing a path of intergovernmental coordination, short of consolidating City and County stormwater operations. Opportunities for improving coordination exist in the planning, construction and maintenance of stormwater facilities, and the management of land uses in a manner that minimizes runoff impacts to downstream neighbors.	Flooding	Low	City and County Public Works; City and County Commissions	Not Applicable
2. Improve the disaster resistance of existing site built housing stock.	Build upon current CDBG, HOME and SHIP programs, to improve the disaster resistance of existing site built housing stock.	Flooding; High Winds; Urban Fire; Wildfire; Storm Surge	High	Tallahassee Neighborhood and Community Services, Leon County Housing and Human Services; Capital Area Red Cross	CDBG Program, SHIP, HOME, HMGP, and FMAP (DCA); Repair and Restoration of Disaster Damaged Historic Properties (FEMA); National Flood Mitigation Fund (FEMA); Em. Advance Measures for Flood Prev. (Army Corps)

**Table 3.3. Prioritized Mitigation Initiatives with Potential Funding Sources, 2009.**

Initiative	Explanation	Specific Hazard Addressed	Estimated Costs, 2009	Responsible Agencies	Potential Funding (non-local source) <sup>1</sup>
<p>3. Advocate that FEMA modify its policies to accommodate local floodplain management program requirements so as to avoid the frequent necessity for duplicate, and sometime conflicting, modeling for NFIP purposes.</p>	<p>FEMA is very reluctant to fund and manage software review activities at a level necessary to facilitate needed coordination and cooperation with multi-objective local stormwater management programs. Tallahassee and Leon County have advanced stormwater regulations and require sophisticated digital modeling. FEMA is very slow to review (let alone consider approval of) new modeling software or even more current versions of previously approved software. As a result, local communities frequently are faced with having to do advanced modeling for design and local permitting and then duplicate modeling with the limited suite of FEMA-approved software for NFIP purposes. Not only is this a waste of taxpayer dollars, but frequently it results in conflicting flood stage data.</p>	<p>Flooding</p>	<p>Low</p>	<p>City of Tallahassee and Leon County Public Works</p>	<p>Not Applicable</p>
<p>4. Improve floodplain boundary identification and implementation of the FEMA map amendment process.</p>	<p>Efforts would focus on correcting inaccuracies in FEMA flood hazard boundaries. These boundaries are used for insurance purposes and frequently increase rates for residents that are clearly not in the floodplain. Other citizens use this information to guide property purchases and find out they are susceptible to flooding despite lying outside the hazard areas of a FIRM. This initiative would require the hiring of sufficient personnel to identify and prepare map amendments and expand the existing floodplain database to include best available information, such as permitting models, for incorporation into a GIS. Besides providing better data that could reduce insurance rates and improve decisions regarding property purchases, this information could guide acquisition efforts.</p>	<p>Flooding; Storm Surge</p>	<p>Medium</p>	<p>City of Tallahassee and Leon County Growth Management and Public Works; Tallahassee-Leon MIS/GIS</p>	<p>EMPA Trust Fund (DCA); Small Watershed Program (USDA); Emergency Advance Measures for Flood Prevention (Army Corps); Resource Conservation and Development Program (USDA); Soil and Water Conservation Program (USDA); National Flood Mitigation Fund (FEMA)</p>

**Table 3.3. Prioritized Mitigation Initiatives with Potential Funding Sources, 2009.**

Initiative	Explanation	Specific Hazard Addressed	Estimated Costs, 2009	Responsible Agencies	Potential Funding (non-local source) <sup>1</sup>
5. Explore methods to eliminate additional development in the 25-year floodplain.	This initiative aims at keeping new buildings from the highest risk area of the floodplain, and might include an acquisition effort targeting undeveloped lots.	Flooding	High	City of Tallahassee and Leon County Growth Management, Tallahassee-Leon County Planning	Not Applicable
6. Create a public education campaign and community program that promotes awareness of vulnerability to hazards in our community and encourage disaster preparation.	Capital Area Chapter of the American Red Cross has developed the Disaster Resistant Neighborhood Program. The program is designed to mitigate the impact of various disasters by educating residential and commercial property owners on personal actions they can take to reduce the affects of a disaster (such as removing dead limbs, putting up shutters / plywood, creating a safe room in your house/business, etc.). The City and County should adopt this program and advertise to all residents, providing technical assistance where needed. The City and County should host an annual or semi-annual disaster fair focusing on the community's vulnerability to various disasters and possible mitigation techniques. The fair could be hosted annually as a stand-alone event, and integrated into other community events throughout the year. This strategy would address creating a safe room within the home, general home protection procedures, etc.	Flooding; High Wind; Urban Fire; Wildfire	Low	City of Tallahassee and Leon County Emergency Management; Capital Area Red Cross	Not Applicable EMPA Trust Fund (DCA)
7. Continue current efforts to remove dead, dying or diseased trees or branches next to roadways and power lines.	Debris from storm events poses a hazard to overhead power lines and roads. While it is current City and County practice to remove trees or branches before they cause problems, these efforts could be improved and expanded to reduce this hazard.	High Wind; Infestation; Winter Storm	High	City of Tallahassee and Leon County Public Works, City Electric Utilities and Talquin Electric,	Not Applicable

**Table 3.3. Prioritized Mitigation Initiatives with Potential Funding Sources, 2009.**

Initiative	Explanation	Specific Hazard Addressed	Estimated Costs, 2009	Responsible Agencies	Potential Funding (non-local source) <sup>1</sup>
8. City of Tallahassee and Leon County flood-related capital improvement projects.	Numerous stormwater projects have been identified as necessary to provide relief to existing flood problems. A complete listing of projects for both the City of Tallahassee and Leon County are included in Tables 3.5 – 3.9 at the end of this chapter.	Flooding	High	City of Tallahassee and Leon County Public Works	CDBG (DCA); HMGP (DCA); Emergency Bank Protection (Army Corps); STP (ISTEA); Sustainable Development Challenge Grants (EPA); National Flood Mitigation Fund (FEMA); Soil and Water Conservation (USDA); Resource Conservation and Development (USDA); Small Watershed Program (USDA)
9. Acquire parcels in the 100-year floodplain.	This initiative builds on past City/County floodplain acquisition efforts and would be enhanced by improved information developed through initiative #5. Acquisitions would target improved parcels with the most vulnerable structures.	Flooding; Storm Surge	High	City Stormwater; County Stormwater; Tallahassee/Leon County Planning	Florida Communities Trust; HMGP
10. Develop an emergency notification system for all hazards.	Emergency notification is essential to protecting life's and property. Immediate notification to a specific area, is critical during rapidly developing situations such as tornados, hazardous material releases, and flash flooding. This system can also be used to inform residents of utilities issues such as boil water notices, power outages, sewer issues, Amber Alerts and more.	All Hazards	Medium	Leon County, City of Tallahassee, Emergency Management; Law Enforcement, Fire and Health.	U.S. Department of Homeland Security

**Table 3.3. Prioritized Mitigation Initiatives with Potential Funding Sources, 2009.**

Initiative	Explanation	Specific Hazard Addressed	Estimated Costs, 2009	Responsible Agencies	Potential Funding (non-local source) <sup>1</sup>
11. Evaluate requirements and feasibility for the County's participation in the NFIP Community Rating System.	Participation in the CRS allows communities to reduce their flood insurance premiums as compensation for flood protection efforts undertaken above NFIP requirements. Communities are assigned a ranking in a 10-tier classification system based on actions taken to reduce flooding. Each additional improvement in one's class ranking allows a 5 percent reduction in premiums.	Flooding; Storm Surge	Low	Leon County Emergency Management; Leon County Stormwater	Not Applicable
12. Explore the feasibility of adding a full build-out component to the Leon County Master Stormwater Management Plan	The master stormwater management plan does not take into account stormwater and flooding impacts given future build-out conditions for the entire County. This information could be used to revise existing floodplain regulations so that they reflect projected built-out conditions.	Flooding; Storm Surge	Medium	Leon County Growth Management, Tallahassee-Leon County Planning	EMPA Trust Fund (DCA); Small Watershed Program (USDA); Emergency Advance Measures for Flood Prevention (Army Corps); Resource Conservation and Development Program (USDA); Soil and Water Conservation Program (USDA); National Flood Mitigation Fund (FEMA)
13. City and County are to implement a program to acquire easement or fee simple land allowing access to maintain the major ditches/canals to reduce flooding.	The program would consist of the acquisition of easements for ditches and the necessary land to access the ditches so normal maintenance can be performed. Currently the City of Tallahassee is responsible for the maintenance of over 23 miles of major ditches. About 15 miles have adequate access easements, are located within an easement or are located on public ROW. Approximately 30 acres are needed to have full public access to maintain the ditches.	Flooding	High	City Stormwater; County Stormwater;	HMGP (DCA); National Flood Mitigation Fund (FEMA)

**Table 3.3. Prioritized Mitigation Initiatives with Potential Funding Sources, 2009.**

Initiative	Explanation	Specific Hazard Addressed	Estimated Costs, 2009	Responsible Agencies	Potential Funding (non-local source) <sup>1</sup>
14. Continue and expand program to deploy flood warning devices and systems at critical facilities and Lake Talquin Dam.	In the event of a leak/breakdown at the dam, there is no local warning system for persons living below the dam on either the Leon or Liberty County side of the river. An audible warning system would provide residents with advance warning. Of course, the alarm would have to be accompanied with a public education program explaining what the alarm meant and how residents should respond. Many areas throughout the County are subject to flooding during heavy rains, particularly low-lying roads. To assist motorists and residents, the City and County should acquire flood-warning devices that would be deployed at vulnerable locations during or in advance of a flood. The program would require the City and County to evaluate and prioritize each vulnerable structure and/or locations for inclusion into a warning system. Eventually the City and County would transition into an automated warning system.	Flood risk to life Flood; Storm Surge	Medium	City of Tallahassee and Leon County Emergency Management	HMGP (DCA); National Flood Mitigation Fund (FEMA)
15. Secure funding source for identified shuttering and hardening needs for windows at Tallahassee Memorial Hospital (TMH).	Tallahassee Memorial Hospital is highly susceptible to wind damage from a tropical storm/hurricane. Currently neither hospital has storm shutters in place. As one of the primary hospitals serving the City of Tallahassee, Leon County and the region, local emergency management personnel should work with TMH to identify shutter options and hardening needs for windows, including costs. In addition, efforts should be undertaken to identify and harden essential support facilities (such as generators) at the hospital.	High Wind (Hurricane and Tornado)	High	City of Tallahassee and Leon County Emergency Management.	EMPA Trust Fund (DCA); HMGP (DCA); CDBG (DCA)
16. Consider addressing the economic impact of different disaster scenarios, as information becomes available.	DCA, as part of their disaster modeling, is trying to develop an economic impact model, which may be available next year. Some data is already available through the TAOS model.	All	Low	City of Tallahassee / Leon County GIS, City County Offices of Management and Budget	Not Applicable

**Table 3.3. Prioritized Mitigation Initiatives with Potential Funding Sources, 2009.**

Initiative	Explanation	Specific Hazard Addressed	Estimated Costs, 2009	Responsible Agencies	Potential Funding (non-local source) <sup>1</sup>
17. Continue to improve and expand regional response capabilities for responding to hazardous materials and terrorism events.	The possibility of an incident involving a weapon of mass destruction or a hazardous materials release exists within Leon County. County EM is preparing a response plan and now needs to identify the equipment needed to respond to effectively to an incident. In addition, the City and County need to identify potential funding sources to acquire the highly specialized, and often expensive, equipment. Tallahassee Fire Department has the only hazardous materials response unit in the region (between Alachua and Escambia Counties, and to a lesser extent, Bay County). Currently, the Fire Department will respond to hazardous materials incidents outside of the County. In the event of multiple incidents, the Fire Department's ability to respond would be severely taxed. The development of a regional hazardous materials response capability would necessitate the expansion of personnel, equipment, and training, as well as the development of local agreements.	Hazardous Materials; Terrorism; Civil Disturbance; Radiological Disaster	Medium	City of Tallahassee and Leon County Emergency Management	FEMA and other federal agency grants Chemical Emergency Preparedness and Prevention Grants Program (EPA); Disposal of Federal Surplus Property (GSA); Hazardous Materials Training Program (FEMA)
18. Maintain training programs for emergency responders, and continue to identify new training programs as needed.	In the event of a natural disaster, hazardous material release, or other catastrophic incident, numerous emergency responders, often with widely different roles, will be required to work as a single, integrated unit. Key to this effort is training. The City and County need to continually identify the different training needs for numerous responders, including, but not limited to dispatchers, initial responders, field responders, and incident commanders. Included as part of this is a continuous training program, involving classroom training, tabletop exercises and field exercises. The effort should also address the development and implement public awareness training programs.	All	Low	City of Tallahassee and Leon County Emergency Management	Hazardous Materials Training Program (FEMA); Chemical Emergency Preparedness and Prevention Grants Program (EPA)

**Table 3.3. Prioritized Mitigation Initiatives with Potential Funding Sources, 2009.**

Initiative	Explanation	Specific Hazard Addressed	Estimated Costs, 2009	Responsible Agencies	Potential Funding (non-local source) <sup>1</sup>
19. Continue to identify needs for improving the disaster resistance of critical facilities.	Critical facilities provide essential services in the event of an emergency, but may be housed in structures that require improvements to weather the impacts of a disaster. Improvements may include, but not be limited to, the installation of storm shutters, or gas generators.	High Wind; Winter Storm; Power Loss	Medium	City of Tallahassee and Leon County Emergency Management	EMPA Trust Fund (DCA); HMGP (DCA); CDBG (DCA)
20. Identify populations at risk under different scenarios.	Determine the impact on housing, medical, evacuation, shelters, etc., for different populations such as those attending special events, student populations, and the elderly.	All	Low	City of Tallahassee and Leon County Emergency Management and City of Tallahassee / Leon County Planning	EMPA Trust Fund (DCA)
21. Encourage the establishment of community-based emergency shelters.	Subdivisions, mobile home parks, etc. that have storm shelters incorporated into their designs would provide additional sheltering capacity and eliminate the need to evacuate residents. These buildings could double as community centers.	All	Low	City of Tallahassee and Leon County Emergency Management	Not Applicable
22. Build a single, community-wide emergency operations center.	Both the City and County maintain a separate emergency operations center (EOC). By building a single, consolidated EOC, integrating all emergency support functions, the City and County will be better prepared for pre- and post-disaster operations.	All	High	City of Tallahassee and Leon County Emergency Management	EMPA Trust Fund (DCA)
23. Deploy low-power public radio station covering all of Leon County.	The station would facilitate the dissemination of disaster related information to the public regarding evacuation procedures, storm forecasts, shelters, etc.	All	Low	City of Tallahassee and Leon County Emergency Management	Not Applicable

**Table 3.3. Prioritized Mitigation Initiatives with Potential Funding Sources, 2009.**

Initiative	Explanation	Specific Hazard Addressed	Estimated Costs, 2009	Responsible Agencies	Potential Funding (non-local source) <sup>1</sup>
24. Identify major land-based transportation corridors and establish safe zones around those corridors based on the exposure pathway for different chemicals.	This would also include identification of all structures, facilities and special need populations in the corridors. Provide ready access to this information to hazardous material response personnel, preferably from deployed resources (such as a GIS capability on the hazardous response vehicle).	Hazardous Materials	Low	City of Tallahassee and Leon County Emergency Management	Hazardous Materials training Program (FEMA); Chemical Emergency Preparedness and Prevention Program (EPA)

Table 3.4. Mitigation Initiatives Prioritization Scores.

<b>Initiative</b>	<b>Health and Safety</b>	<b>Protects People</b>	<b>Protects Property</b>	<b>Risk Reduction</b>	<b>Essential Services</b>	<b>Guiding Principles</b>	<b>Implement Time</b>	<b>Bonus</b>	<b>Total Score</b>
Increase intergovernmental coordination in the area of stormwater management.	50	80	80	80	30	20	40	10	390
Improve the disaster resistance of existing site built housing stock.	100	80	80	60	0	15	30	20	385
Advocate that FEMA provide greater flexibility to local communities that elect to establish more accurate flood elevations.	50	80	80	40	20	30	60	10	370
Improvement in floodplain boundary identification and implementation of the FEMA map amendment process.	75	60	60	20	20	30	10	40	355
Explore methods to eliminate additional development in the 25-year floodplain.	100	80	80	20	20	20	0	20	350
Create a public education campaign and community program that promotes awareness of vulnerability to hazards in our community and encourage disaster preparation.	75	80	40	20	0	25	60	40	340
Continue to improve current efforts to remove dead, dying or diseased trees or branches next to roadways and power lines.	75	60	20	80	20	25	30	20	330
Flood related capital improvement projects.	100	60	40	40	20	30	10	30	330
Acquire parcels in the 100-year floodplain.	75	40	40	60	0	20	60	10	305
Develop an emergency notification system for all hazards.	50	80	40	20	30	15	30	40	305
Evaluate requirements and feasibility for the County's participation in the NFIP Community Rating System.	75	80	20	40	0	25	40	20	300
Explore the feasibility of adding a full build-out component to the Leon County Master Stormwater Management Plan	75	40	40	20	20	30	40	10	275
City and County are to implement a program to acquire easement or fee simple land allowing access to maintain the major ditches/canals to reduce flooding.	50	40	40	80	20	20	10	10	270

<b>Initiative</b>	<b>Health and Safety</b>	<b>Protects People</b>	<b>Protects Property</b>	<b>Risk Reduction</b>	<b>Essential Services</b>	<b>Guiding Principles</b>	<b>Implement Time</b>	<b>Bonus</b>	<b>Total Score</b>
Continue and expand program to deploy flood warning devices and systems at critical facilities and Lake Talquin Dam.	75	20	20	60	20	15	40	20	270
Secure funding source for identified shuttering and hardening needs for windows at Tallahassee Memorial Hospital (TMH).	100	20	20	20	20	15	30	30	255
Consider addressing the economic impact of different disaster scenarios, as information becomes available.	50	80	0	20	20	25	30	30	255
Continue to improve and expand regional response capabilities for responding to hazardous materials and terrorism events.	50	80	0	20	20	15	30	20	235
Maintain training programs for emergency responders, and continue to identify new training programs as needed.	50	60	0	40	30	10	30	10	230
Continue to identify needs for improving the disaster resistance of critical facilities.	75	20	20	60	20	0	30	0	225
Identify populations at risk under different scenarios.	50	20	0	60	20	0	30	10	190
Encourage the establishment of community-based emergency shelters.	50	10	0	80	0	5	30	10	185
Build a single, community-wide emergency operations center.	50	80	0	0	20	10	30	--	180
Deploy a low-power public radio station.	50	20	0	20	20	0	30	20	140
Identify major land-based transportation corridors and establish safe zones around those corridors based on the exposure pathway for different chemicals.	50	40	0	0	0	0	40	10	140

Table 3.5. City of Tallahassee Drainage Improvement Project, 2008 – 2013.

The City has identified the following 16 drainage improvement projects in its current Capital Improvement Program (FY2008-2013). The estimated cost of these projects totals \$64,650,400.

Project	Cost (\$)	Prior Year	Current Status
Campus Circle Flooding	4,280,000	Completed	Completed
Central Ditch Flood Reduction	10,900,000	On-hold	On-hold
Chapel Drive	1,200,000	Design	Completed
Connie Drive Flooding	4,275,000	Under Construction	Under Construction
E Georgia & Meridian	2,575,000	Study	Design
Emory Court	9,000,000	Design	Design
Ford Street Drainage Improvements	950,000	Design	Construction
Frenchtown Stormwater Master Plan	11,645,400	Study	Design
Lafayette Park Outfall	2,200,000	Study	Design
Meginnis Creek at Sharer Road	4,725,000	Design	Construction
Northeast Ditch at Lonbladh	1,500,000	Design	Construction
Park Ave. Tributary No. 1 Improvements	2,400,000	On-hold	Study
Pickett Court	1,000,000	On-hold	Study
Rainfall and Stream Gauging	390,000	Data gathering	Data gathering
Small Projects Initiative (see below)	4,250,000	See below	See Table 2 below
Stormwater Infrastructure Inventory and Mapping	3,360,000	Data gathering	Data gathering
<b>Total</b>	<b>\$64,650,400</b>		

Source: City of Tallahassee Stormwater Management Division, 2009

Table 3.6. City of Tallahassee Drainage Improvement Projects – Small Projects Initiative.

Project	Priority Year Activity	Status
1103 Bonnie Drive	Under Construction	Completed
2212 Eastgate Way	On hold	On hold
O'Brien and Grey Abbey Court	Under Construction	Completed
Sandhurst Drive	Future	Design
2925 Edenderry Drive	Design	Under Construction
926 Millard Street	Design	Under Construction
3449 Mahoney Drive	Study	Design
Villages of Killearn/Kinsail	Study	On Hold
2764 Faringdon Drive	Future	Study
1102 Tanner	Future	Study
3068 O'Brien Drive	Future	Future
3933 Runnymede	Future	Future
1341 Hutchinson	Future	Future
605 Putnam Drive	Future	Future
2329 Limerick Drive	Future	Future
1423 Devils Dip	Future	Future
1503 Spruce Avenue	Future	Future
519 Short Street	Future	Future
2005 Florida Avenue	Future	Future
312 & 316 Ridge Road	Future	Future
2905 Brey Court	Future	Future
1829 Ivan Drive	Future	Future
Randolph / Belleauwood /Jenette/2235 & 2243 Trescott	Future	Future
823 Ausley Road	Future	Future
510 Middlebrooks Circle	Future	Future

Source: City of Tallahassee Stormwater Management Division, 2009

Notes: All “Small Projects Initiative ” projects that are listed as “On Hold” have been recommended for construction and are awaiting implementation. SPI projects listed as “Future” are planned in the SPI program and will be implemented in the order listed.

Table 3.7. Leon County Capital Improvement Projects, 2009.

<b>Project</b>
Blueprint 2000 Water Quality Enhancements Lake Munson Dam Replacement Sharer Road Outfall Stabilization Lake Heritage Outfall
Bradfordville Pond 4 Outfall Stabilization
Bradfordville Pond 6 Facility Rehabilitation
Killearn Acres Flood Mitigation
Killearn Lakes Plantation Stormwater
Lafayette Street Stormwater
Lakeview Bridge
Lexington Regional SWMF
Longwood Subdivision Retrofit
Rhoden Cove Wetland Restoration
Gum Creek Flood Study
Okeeheepkee Basin - Fuller Road

Source: Leon County Public Works, 2009

Table 3.8. Leon County Stormwater and Transportation Projects, 2009.

<b>Project</b>
Alexandrite Court
Autumn Woods
Ben Boulevard
Edenfield/Barfield Roads Area
Edinberg Estates
Hawkbill Court
Killearn Acres III
Lakeview Drive
Lawndale Drive
Maylor and Taylor Roads
Parkhill Road
Portsmouth Circle/ Apalachee Pkwy
Raymond Tucker Road
Salamanca & Palencia Courts
Southbrooke/Otter Creek/Chadwick/Wildlife
Sunflower Road
Alford Arm @ CSX Railroad Area
Stoneler Road Outfall
Chaires Crossroad (Lafayette outfall)
Benjamin Chaires/Buck Lake/Chaires/Capitola Roads (St. Marks River)
Fairbanks Ferry Court (Ochlockonee River)
Flooded Property Acquisitions

Source: Leon County Public Works, 2009

Table 3.9. Leon County Future Capital Improvement Projects List, 2009.

<b>Project</b>
CAFWN Telemetry Expansion
St. Marks River Floodplain Acquisition
Campbell Pond Acquisition
Moccasin Gap Rd @ Sanders Hammock Pond
Miccosukee Rd: Black Creek and Patty Sink Drain
Crump Rd at Emerald Acres
Wadesboro Rd
Baum Rd: US 90, Black Creek, South of Pennewaw Trace
Bird Sink Floodplain Acquisition
Veterans Memorial @ US90
Jefferson Rd: Wadesboro Road and Patty Sink overflow
Patty Sink Floodplain Acquisition
Buck Lake Rd: Alford Arm and East of Baum
Copeland Sink Floodplain Acquisition

Source: Leon County Public Works, 2009